REMARKS:

Applicant has carefully studied the final Examiner's Action and all references cited therein. The amendment appearing above and these explanatory remarks are believed to be fully responsive to the Action. Accordingly, this important patent application is now believed to be in condition for allowance.

Applicant responds to the outstanding Action by centered headings that correspond to the centered headings employed by the Office, to ensure full response on the merits to each finding of the Office.

New claim 43 has been added by amendment.

Claim Rejections – 35 U.S.C. § 112

Claims 1, 3-9, 12-14, 16, 17 and 39-40 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

Regarding claim 1, the Office states that the limitation, "a first fiberglass cloth positioned adjacent to the electrolyte solution and distal to the aluminum anode", is not described in the instant specification and as such is new matter.

Claim 1 has been amended to overcome the 35 U.S.C. § 112 rejection by the Office and is now believed to be in condition for allowance. Support for the amendments to claim 1 can be found with reference to Fig.1.

Claims 3-9, 12-14, 16, 17, and 39-40 depend from claim 1, and as such are also now believed to be in condition for allowance in view of the amendment to claim 1.

Claim Rejections – 35 U.S.C. § 103

Applicant acknowledges the quotation of 35 U.S.C § 103(a).

Claims 1, 3-6, 12-14, 16, 17 and 39-40 stand rejected under 35 U.S.C § 103(a) as being unpatentable over Narang (US 6,991,876) in view of Momyer (US 4,001,043).

Independent claim 1 describes, "an electrochemical cell comprising: an aluminum anode; a first fiberglass cloth; an electrolyte solution positioned between the first fiberglass cloth and the aluminum anode; a cathode comprising a woven metal electrode and a solid alkali peroxide, the cathode positioned adjacent to the first fiberglass cloth, the woven metal electrode of the cathode positioned such that the first fiberglass cloth is between the woven metal electrode and the electrolyte solution and the solid alkali peroxide of the cathode positioned such that the woven metal electrode is between the solid alkali peroxide and the first fiberglass cloth, the aluminum anode and the cathode to participate in an electrochemical reaction to release energy from the cell upon the introduction of an aqueous activator".

As such, claim 1 describes an electrochemical cell in which the solid alkali peroxide of the cathode is positioned "behind" the woven metal electrode of the cathode, relative to the aluminum anode. In other words, the aluminum anode is separated from the cathode by the electrolyte and the first fiberglass cloth, and the solid alkali peroxide of the cathode is separated from the first fiberglass cloth by the woven metal electrode. In this configuration, the addition of the aqueous activator to the cell results in dissolution of the solid alkali peroxide in the aqueous activator such that the dissolved alkali peroxide passes through the woven metal electrode.

The Office states, with respect to claim 1, the Office states that Narang teaches an electrochemical cell comprising an aluminum anode, a solid alkali metal peroxide cathode comprising sodium peroxide particulates and a separator comprising a fiberglass cloth between the anode and the cathode (Fig. 1; 4:7-10, 6:4-12, 8:1-8, Claim 1, Examples). The Office states that the cathode comprises a nickel current collector and the use of a glass woven separator between the anode and the cathode (Fig. 1; Examples) and that since the anode, cathode and electrolyte taught by Narang are equivalent to the claimed anode, cathode and electrolyte, it is inherent that the components have the same characteristics. Therefore, the Office concludes that it is inherent that the alkali metal peroxide of Narang passes through the metal electrode.

Applicant respectfully disagrees with the finding by the Office.

Amended claim 1 recites the structural limitation of the invention including, "a cathode comprising a woven metal electrode and a solid alkali peroxide, the cathode positioned adjacent to the first fiberglass cloth, the woven metal electrode of the cathode positioned such that the first fiberglass cloth is between the woven metal electrode and the electrolyte solution and the solid alkali peroxide of the cathode positioned such that the woven metal electrode is between the solid alkali peroxide and the first fiberglass cloth". As such, in accordance with the present invention, the solid alkali peroxide is separated from the first fiberglass cloth by the woven metal electrode.

In contract, Narang teaches, with reference to Fig. 1, the solid alkali metal peroxide (Li_2O_2) is positioned between the first fiberglass cloth (separator) and the woven metal electrode (Ni Current Collector). In this configuration, the solid alkali metal peroxide will not "pass through the metal electrode" as suggested by the Office, because the solid alkali metal peroxide is not positioned behind the current collector, but is instead positioned in front of the current collector. As such, Narang does not teach, "a cathode comprising a woven metal electrode and a solid alkali peroxide, the cathode positioned adjacent to the first fiberglass cloth, the woven metal electrode of the cathode positioned such that the first fiberglass cloth is between the woven metal electrode and the electrolyte solution and the solid alkali peroxide of the cathode positioned such that the woven metal electrode is between the solid alkali peroxide and the first fiberglass cloth" as is specifically recited in amended claim 1, but instead teaches a cell wherein the solid alkali peroxide is positioned between the woven metal electrode and the first fiberglass cloth.

Additionally, the Office states that, "While Narang is silent to a second layer of fiberglass separator, the duplication of components to serve the same purpose is obvious to one of skill in the art. The second separator layer between the anode and cathode electrode to keep the battery from shorting out".

Applicant respectfully disagrees with the Office regarding the second layer of fiberglass serving the same purpose of electrically separating the anode from the cathode. As shown with reference to Fig. 1 of the present invention, the second fiberglass layer **40** does not serve the purpose of separating the anode from the cathode as suggested by the Office, because the second

fiberglass layer **40** is separated from the anode **15** by the cathode **20**. As such, the second fiberglass is not able to "keep the battery from shorting out", because it is not positioned between the anode and the cathode as suggested by the Office, but instead the cathode is positioned between the anode and the fiberglass layer.

The Office states on pg. 4 that, "Narang is silent to a silver mesh current collector and an aqueous electrolyte. Momyer teaches a metal-water electrochemical cell comprising a lithium anode, a silver current collector and an electrolyte comprising soluble peroxide ions, including hydrogen peroxide, sodium peroxide, sodium super oxide, lithium peroxide, potassium peroxide and potassium super oxide (Claims 1, 2; 4:59-68)". Additionally, the Office states that, "Momyer teaches that is would be obvious to one skilled in the art to incorporate the same electrode configuration with an aqueous electrolyte. Combining prior art elements according to known methods to yield predictable results and using known techniques to improve similar devices in the same way are considered obvious to one of ordinary skill in the art (KSR, MPEP 2141 (III))".

As such, it appears that the Office is suggesting that is would be obvious to one skilled in the art to incorporate the aqueous electrolyte of Momyer into the electrochemical cell of Narang which includes an aluminum anode, a solid alkali metal peroxide cathode, a fiberglass cloth separator and an electrolyte to arrive at the present invention.

Applicant respectfully disagrees that it would be obvious to substitute the electrolyte of Narang with an aqueous electrolyte as describe by Momyer.

The electrochemical cell of Narang is clearly described as having a non-aqueous electrolyte. Narang, throughout the specification and specifically at col. 2, lines 60-65, states that, "The present invention is directed to configurations and methods for a battery having a non-aqueous electrolyte, and in which an anode includes a metal, a cathode includes an active oxygen species, and wherein oxidation of the metal and reduction of the active oxygen species provides the current of the battery". As such, the electrochemical cell of Narang is clearly described as being non-aqueous and Narang does not teach or suggest that the cell would also be operable as an aqueous cell. The electrochemical cell of Narang is a non-aqueous cell and the electrochemical cell of Momyer is an aqueous cell. Neither Narang or Momyer teach or suggest

that the non-aqueous electrolyte of Narang could be substituted with the aqueous electrolyte of Momyer.

To establish a *prima facie* case of obviousness, a reason, suggestion, or motivation from the prior art as a whole for the person of ordinary skill to have combined or modified the references must be provided. The Federal Circuit has established that obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination. Applicant contends that the Office has not provided any motivation to combine the teaching of Narang and the teaching of Momyer to arrive at the present invention. As such, the Office has not established a *prima facie* case of obviousness regarding amended independent claim 1.

For the reasons indicated above, Applicant believes that amended independent claim 1 is patentable over Narang in view of Momyer and is believed to be in condition for allowance.

Claims 3-9, 12-14, 16, 17, 39 and 40 are dependent upon claim 1, which has been shown to be allowable, and are therefore allowable as a matter of law.

Claims 1-3, 5-9, 11-15, and 40 stand rejected under 35 U.S.C § 103(a) as being unpatentable over Marsh et al. (US 5,445,905) in view of Momyer (US 4,001,043).

Independent claim 1 describes "an electrochemical cell comprising: an aluminum anode; a first fiberglass cloth; an electrolyte solution positioned between the first fiberglass cloth and the aluminum anode; a cathode comprising a woven metal electrode and a solid alkali peroxide, the cathode positioned adjacent to the first fiberglass cloth, the woven metal electrode of the cathode positioned such that the first fiberglass cloth is between the woven metal electrode and the electrolyte solution and the solid alkali peroxide of the cathode positioned such that the woven metal electrode is between the solid alkali peroxide and the first fiberglass cloth, the aluminum anode and the cathode to participate in an electrochemical reaction to release energy from the cell upon the introduction of an aqueous activator".

With respect to claims 1, the Office states that Marsh et al. teaches an electrochemical cell comprising an anode of aluminum (12), a catholyte of hydrogen peroxide (18) and a spacer (30) at Figure 1, column 2, lines 20-54 and example 1. The Office goes on to state that while Marsh et al. does not teach the use of an alkali metal peroxide cathode, Momyer teaches a metal-water electrochemical cell comprising a lithium anode, a silver cathode and lithium hydroxide electrolyte in which the anode and the cathode are immersed. The Office states that Momyer further discloses an anode moderator consisting of soluble peroxide ions, including hydrogen peroxide, sodium peroxide, sodium super oxide, lithium peroxide, potassium peroxide and potassium super oxide at claims 1 and 2, and column 4, lines 59-68. The Office concludes that hydrogen peroxide and sodium peroxide are considered functionally equivalent soluble peroxides and that therefore, it would have been obvious to one of ordinary skill in the art to substitute lithium peroxide (or potassium peroxide) for the hydrogen peroxide in the electrochemical cell disclosed by Marsh.

Applicant respectfully disagrees with the finding of the Office. The Office is suggesting that it would have been obvious to substitute lithium peroxide as taught by Momyer for the hydrogen peroxide in the electrochemical cell disclosed by Marsh because hydrogen peroxide and sodium peroxide are considered functionally equivalent soluble peroxides.

Claim 1 of the present invention includes, "a cathode comprising a woven metal electrode and a solid alkali peroxide". Applicant contends that hydrogen peroxide is not considered functionally equivalent to lithium peroxide (or other solid alkali peroxides) as suggested by the Office.

Alkali metals are known to be a series of chemical elements comprising Group 1 of the periodic table: lithium (Li), sodium (Na), potassium (K), rubidium (Rb), caesium (Cs) and francium (Fr). While Hydrogen (H) is also in Group 1 on the periodic table because it also has a single valence electron, hydrogen is not metallic and does not behave as an alkali metal except under extremely high pressure. Hydrogen is very different from the other members of the alkali metal group. In its elemental form, hydrogen is a colorless, odorless, extremely flammable gas at room temperature, consisting of diatomic molecules of H_2. Alternatively, the other alkali metals in Group 1 are soft, shiny, low-melting, highly reactive metals, which tarnish when

exposed to air. The alkali metals are very reactive and are seldom found in their elemental form in nature, and are usually found as ionic compounds.

As such, for the reasons indicated above, Applicant contends that hydrogen peroxide is not considered equivalent to lithium peroxide (or any of the other solid alkali peroxides) and therefore it would not be obvious to substitute lithium peroxide as taught by Momyer for the hydrogen peroxide as taught by Marsh as suggested by the Office.

For the reasons cited above, Applicant believes that amended independent claim 1 is patentable over Marsh in view of Momyer and is believed to be in condition for allowance.

Claims 3-9, 12-14, 16-17, 39 and 40 are dependent upon claim 1, which has been shown to be allowable, and therefore are allowable as a matter of law.

If the Office is not fully persuaded as to the merits of Applicant's position, or if an Examiner's Amendment would place the pending claims in condition for allowance, a telephone call to the undersigned at (813) 925-8505 is requested.

Very respectfully,

SIGNATURE OF PRACTITIONER

Reg. No. 46,457
Tel. No.: (813) 925-8505

Molly Sauter
Smith & Hopen, P.A.
Customer No. 21, 901
180 Pine Avenue North
Oldsmar, Florida 34677

CERTIFICATE OF ELECTRONIC TRANSMISSION

(37 C.F.R. 2.190 (b))

I HEREBY CERTIFY that this correspondence is being electronically transmitted to the Patent and Trademark Office through EFS Web on January 16, 2009.

/erica gossage/

Date: January 16, 2009

Erica Gossage